

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 50.

September, 1948.

No. 597

STUDIES OF AMERICAN TYPES IN BRITISH HERBARIA

M. L. FERNALD AND BERNICE G. SCHUBERT

(Continued from page 208)

SIUM SUAVE Walt. Fl. Carol. 115 (1788).—In RHODORA, xlv. 454 (1943) the senior author, recording the extension northward into southeastern Virginia of *S. floridanum* Small, Man. Se. Fl. 976, 1506 (1933), suggested that the type of Walter's species could have been a specimen of the latter species. Fortunately, however, the fragment preserved in the Walter collection is from perfectly characteristic material of the wide-ranging northern, as well as southern, plant, with stiffly ascending and strongly corrugated stems, relatively coarse rays of the umbel and very numerous flowers in the umbellets, of the plant now generally known as *S. suave*.

A synonym of *S. floridanum* is *S. lineare* Michx., β . *intermedium* Torr. & Gray, Fl. i. 611 (1840). One of Chapman's original specimens in the Gray Herbarium is definitely of *S. floridanum*. Should the latter eventually be placed under *S. suave* as an extreme variation, Torrey & Gray's varietal name will have to be considered.

ANGELICA LOBATA Walt. Fl. Carol. 115 (1788).—The type, a badly crumpled leaf is, without doubt, from a plant of *Ligusticum canadense* (L.) Britt., as already suggested by Mathias & Constance in N. Am. Fl. 28b. 145 (1944), a characteristic woodland species of the southeastern states.

LEUCOTHOE editorum, nom. nov. *L. Catesbaei* sensu Gray, Man. ed. 2, 252 (1856), not *Andromeda Catesbaei* Walt. Fl. Carol. 137 (1788), basonym.

In RHODORA, xlvii. 169–171 (1945), the senior author pointed out the utter confusion which has existed as to the true basis of *Leucothoe Catesbaei*, through the fact that Walter's type had not been clearly understood and that Pursh in describing *Andromeda spinulosa* had well defined the montane species but had given the locality as "Lower Carolina" and had cited *A. Catesbaei* Walt. as an exact synonym.

The Walter type (572), clearly labeled *Andromeda Catesbaei*, proves to be a flowering branch of very characteristic *Leucothoe axillaris* (Lam.) D. Don or *Andromeda axillaris* Lam. Encycl. i. 157 (1783). In the Synoptical Flora of North America, ii¹. 34 (1878), Gray treated the montane species with caudate-attenuate leaf-tips and acutish bracts and sepals as *L. Catesbaei*, with the synonym *A. spinulosa* Pursh "excl. habitat"; and he added the parenthetical note, "Pursh characterized the two species but transposed the habitats", Pursh having cited the coastwise *Andromeda axillaris* as "on the mountains" and, as already noted, his *A. spinulosa* from the low country. Since *Andromeda spinulosa* Pursh had the exact synonym *A. Catesbaei* Walt., it must be treated as having an illegitimate name because Pursh should have used the earlier name which he cited. Other names which have been assigned to the synonymy of the montane shrub, *Leucothoe editorum*, are *Andromeda Walteri* Willd. Enum. 453 (1809), a renaming of *A. Catesbaei* Walt., and *A. lanceolata* Desf. Cat. Pl. Hort. Paris, 136 and 398 (1829), an unencumbered name but unfortunately antedated by *A. lanceolata* Wallich (1820) and *A. lanceolata* Vell. (1825). There seems, therefore, to be no binomial except possibly the later homonym, *Andromeda lanceolata* Desf., available which can legitimately be taken up for the plant which has erroneously passed as *L. Catesbaei*.

It is important to record the fact that it was clearly stated in his manuscript notes of 1887 by Asa Gray of "'Andromeda Catesbaei 572'. It is *A. axillaris*!" Apparently Gray found no opportunity to make the correction.

ASCLEPIAS POLYSTACHIA Walt. Fl. Carol. 107 (1788) was well described:

polystachia fol. petiolatis oppositis lanceolatis laevibus,
 13. subtus venosis umbellis pluribus terminalibus
 lateralibusque, petalis et auriculis cornicu-
 latis purpurascanti-rubris, corpusculo latere
 fusco, apice albo; caulis 4-pedalibus.

This description, with “fol. petiolatis . . . lanceolatis laevibus, . . . umbellis . . . terminalibus lateralibusque”, is so little suggestive of *A. rubra* L. which has, to quote Gray (Syn. Fl.), “leaves . . . tapering from near the rounded or obscurely cordate base to an acuminate apex”, that it is surprising that Gray, Syn. Fl. ii¹. 90 (1878), should have suggested the identity of *A. polystachia* (although with a saving “?”) with *A. rubra*. He also suggested, likewise with a query, the identity of *A. cordata* Walt., l. c. 105, with *A. rubra*. There is no preserved specimen of the latter but Walter’s “fol. cordato-lanceolatis subsessilibus” and his other characters pretty definitely indicate that his *A. cordata* is *A. rubra* L. (1753).

Walter’s account of his *A. polystachia* is very similar to Gray’s (Syn. Fl.) description of the leaves of *A. phytolaccoides* Pursh and Small’s (Man.) account of the same species, as the earlier *A. exaltata* “(L.) Muhl.”, that one automatically looks for a Walter specimen to match these accounts. Gray has “Bright green and glabrous: stem 4 or 5 feet high: leaves membranaceous, from oval to ovate-lanceolate, acuminate at both ends, short-petioled, 4 to 8 inches long” (compare “fol. petiolatis . . . lanceolatis laevibus”—Walt.). Small, describing the flowers of the same species, which extends southward to Georgia and Mississippi, says: “corolla-lobes greenish or greenish-purple . . . : hoods . . . white or flushed with pink” (compare “petalis et auriculis corniculatis purpurascanti-rubris, corpusculo latere fusco, apice albo”—Walt.). Fortunately, on p. 10 of the Fraser volume there is a comparatively good foliage-specimen of “*Asclepias Novum*” with the ovate-lanceolate leaves acuminate to both ends, petioled and with the venation of the leaves of characteristic *A. exaltata* or *phytolaccoides*.

From the bibliography given by Britton & Brown, iii. 9 (1898),

A. Syriaca var. *exaltata* L. Sp. Pl. Ed. 2, 313. 1762.

Asclepias exaltata Muhl. Cat. 28. 1813.

A. phytolaccoides Pursh, Fl. Am. Sept. 180. 1814,

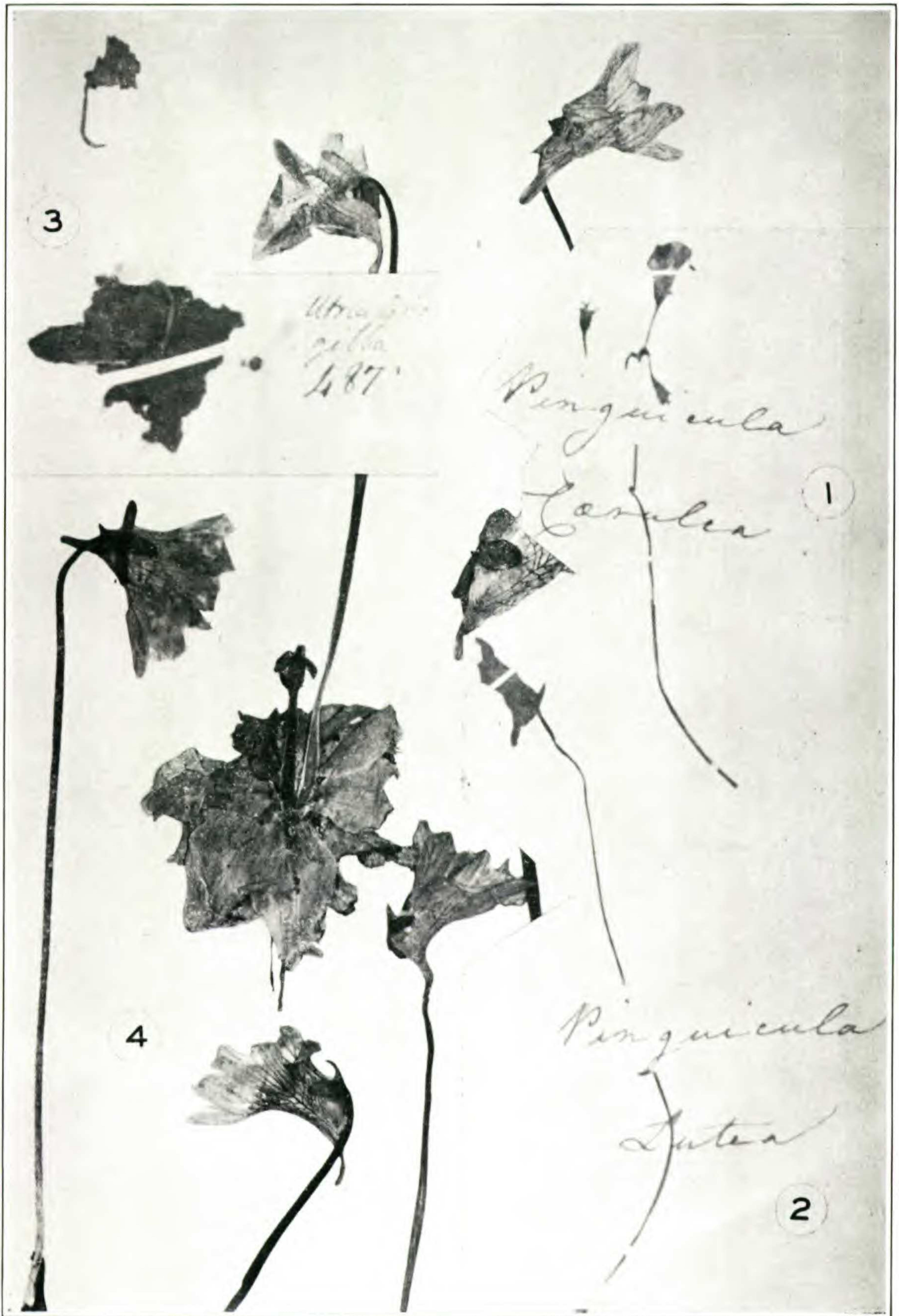
one might infer that Walter’s binomial of 1788 should be taken

up, but Muhlenberg happened, although citing no basonym nor giving any diagnosis, to hit on the correct binomial; for in *Species Plantarum*, ed. 2, l. c., Linnaeus cited under his *A. syriaca*, β . *exaltata* an earlier reference. Following this back we find the *species*, properly with a binomial and a very detailed description, as *A. EXALTATA* L. in *Amoen. Acad.* iii. 404 (1756). That is the correct binomial.

ORIGANUM FLEXUOSUM Walt. *Fl. Carol.* 165 (1788), our PLATE 1112, was one of two new species described by him under a genus defined "*Involucrum multisetum verticillo subjectum*" etc.; *i. e.* his *Origanum* was primarily the species of *Pycnanthemum*, \S *Tullia* Benth., with bristle-tipped calyx-teeth. Walter's description was

flexuosum 2.	capitulis axillaribus, floribus sessilibus,
An satureja	bracteis quam corollulae minoribus, caule
virginiana?	flexuoso, foliis sublinearibus.
LINN.	

This species is one of the two of the genus represented, without specific name, on p. 79 in the Fraser series. The specimen (our PLATE 1112, FIG. 1, $\times \frac{2}{5}$, FIG. 2, $\times 3$) is an unusually good one of the characteristic plant of Walter's region with heads on axillary branches, calyx-lobes aristate, stem often flexuous and leaves "sublinear" (linear-oblong to narrowly oblong-lanceolate and blunt, entire or nearly so) which was described as *Pycnanthemum hysopifolium* Benth. (1834), almost as if he had Walter's specimen before him: "foliis subsessilibus oblongo-lanceolatis linearibusve obtusis subintegerrimis . . . , verticillastris paucis multifloris laxiusculis, bracteis subulatis aristatis extimis oblongis, calycis dentibus subaequalibus subulatis rigidis". There is no question about the true identity of *Origanum flexuosum* Walt. with the consequent carelessly made combination, *PYCNANTHEMUM FLEXUOSUM* (Walt.) BSP., *Prelim. Cat. N. Y. Pl.* 42 (1888), the combination unintelligently published without bibliographic citation as *P.* "flexuosum, (Walt.) (*P. linifolium*, Pursh.)", unintelligently because the Walter description and plant are of a section very distinct from that containing Pursh's *P. linifolium*! In *Mem. Torr. Bot. Cl.* v. 279 (1894) Britton clarified the essential bibliography by basing *Koellia flexuosa* (Walt.) Britton on *Origanum flexuosum* Walt. *Fl. Carol.* 165 (1788), overlooking the



PINGUICULA CAERULEA Walt.: FIG. 3, TYPE, \times ca. $\frac{1}{3}$, mislabeled by Fraser as *Utricularia gibba*; FIG. 4, plant and flowers, \times 1, from Summerville, South Carolina, *Hunnell*, no. 8115.
 P. LUTEA Walt.; FIG. 2, TYPE, \times $\frac{1}{2}$.
 OXALIS VIOLACEA L.: FIG. 1, inflorescence, \times $\frac{1}{2}$, mislabeled by Fraser as *Pinguicula caerulea*!

fact that the combination *K. flexuosa* (Walt.) MacMillan, based on “*Nepeta* [instead of *Origanum*] *flexuosa* Walt.”, without citation of page (presumably not seen by MacMillan), was published in *Metasp. Minn. Val.* 452 (1892), for a mixture of three species said to grow in Minnesota, at least 650 miles northwest of the western limit of Walter’s species. Britton gave other synonyms, including *P. linifolium* Pursh (1814) and “*Satureia Thymus Virginicus* L. *Mant.* 2: 409 (1771)”.

Before discussing the latter names it should be noted that Grant & Epling, *Study of Pycnanthemum*, Univ. Calif. Pub. Bot. xx. no. 3: 224 (1943), explicitly say, we know not why: “there are no specimens of this species [Walter’s *Origanum flexuosum*] among the Walter plants in the British Museum; *P. aristatum* is represented, however”. Since *P. aristatum* Michx. (i. e. *P. setosum* Nutt.—see Fernald in *RHODORA*, xlvii. 178 (1945)) has, as correctly described by Grant & Epling “leaf blades narrowly ovate, infrequently ovate-lanceolate, usually rather acute, . . . 1–3 cm. broad”, it is difficult to understand how the Walter specimen could have been so misidentified; there is nothing preserved in the Fraser series but this one easily identifiable specimen and two unmatched fragments which have subulate-aristate calyx-lobes but very narrowly linear leaves. These fragments, which are surely not of the section *Brachystemum* Benth., which contains *P. linifolium*, definitely belong, like *P. setosum* and true *P. flexuosum* (*P. hyssopifolium*) to § *Tullia* and apparently represent an unrecognized species, which should be sought in eastern South Carolina.

In the synonymy of *Koellia flexuosa* sensu Britton, l. c., excluding basonym, there appears another name which was published earlier than *Brachystemum linifolium* Willd. *Enum.* 623 (1809), basonym of *Pycnanthemum linifolium* (Willd.) Pursh, *Fl. Am. Sept.* ii. 409 (1814). This was the already quoted “*Satureia Thymus Virginicus*” L. *Mant.* ii. 409 (1771) which leads us to the Linnaean account. This gives no justification for the trinomial listed by Britton, for here is what Linnaeus said:

Satureja virginic. THYMUS capitulis terminalibus, caule erecto, foliis lanceolatis *rectius*.

Without further explanation it would seem that here was a variant of the old and much confused *S. virginiana* L. (1753),

which has been well established in the sense of *P. lanceolatum* Pursh (see Grant & Epling, l. c. 221). Grant & Epling cite under *Pycnanthemum flexuosum* in their sense the synonym *Koellia capitata* Moench, Meth. 408 (1794) which, obviously antedates *Brachystemum linifolium* Willd. (1809) and *Pycnanthemum linifolium* (Willd.) Pursh, but Moench, describing a plant "foliis lanceolatis", cited as an unquestioned synonym "*Thymus virginicus*. Linn.". Since he did not take up this earlier name Moench's name was illegitimate; its lanceolate leaves are not good for *P. linifolium*. Incidentally, Grant & Epling, with many collections before them could map the latter species (their map 11) from South Carolina only from the mountains, and assiduous collectors have not secured it from the Coastal Plain south of North Carolina. In other words it is not known from near Walter's home, where the plant Walter described and collected abounds (see Grant & Epling, map 13). With many stations recorded in eastern but none in western South Carolina and copious material from Walter's own county the identity of his species might have been surmised.

The upshot seems to be that, since the preserved specimen which exactly coincides with Walter's description of his *Origanum flexuosum*, is characteristic *Pycnanthemum hyssopifolium*, we are forced to a change:

PYCNANTHEMUM FLEXUOSUM (Walt.) BSP. Prelim. Cat. N. Y. Pl. 42 (1888), as amplified by Britton in Mem. Torr. Bot. Cl. v. 279 (1894) as to basonym, not sensu BSP. *Origanum flexuosum* Walt. Fl. Carol. 165 (1788). *P. hyssopifolium* Benth. Lab. Gen. Sp. 329 (1834). *P. aristatum* Michx., var. *hyssopifolium* (Benth.) Gray, Syn. Fl. N. Am. ii¹. 354 (1878). *Koellia flexuosa* (Walt.) MacMillan, Metasp. Minn. Val. 452 (1892) as to name only; sensu Britton in Mem. Torr. Bot. Cl. v. 279 (1894), not as to other synonyms.

We now reach the stiffly branched and tough (not "flexuous") plant, of Bentham's § *Brachystemum*, which has been erroneously passing as *Pycnanthemum flexuosum*. That it is *P. linifolium* (Willd.) Pursh, Fl. Am. Sept. ii. 409 (1814), based on *Brachystemum linifolium* Willd. Enum. Hort. Berol. 623 (1809), there is no doubt; but it is also *P. tenuifolium* Schrader, Hort. Gott. 10, tab. iv (1809). Schrader gave a very full analytical description of the plant (unfortunately said to have its "Habitat in Archi-

pelago'') and a full-size colored plate of our common linear-leaved species which Willdenow defined the same year. But by present rules of nomenclature Willdenow's *Brachystemum linifolium* was an illegitimate name for, after a two-line diagnosis, Willdenow cited as exact synonyms the earlier *B. virginicum* Michx., which rested on *Thymus virginicus* L., and also *Thymus virginicus* of "Sp. pl. ed. W. 3. p. 145". Since the *Thymus virginicus* of Willdenow's Species was the *T. virginicus* L., Willdenow should have retained the original specific epithet. Thus, although published slightly later, *Pycnanthemum tenuifolium*, beautifully described and illustrated and without citation of an earlier name, is the legitimate name of the plant, the bibliography of which is

PYCNANTHEMUM TENUIFOLIUM Schrader, Hort. Gott. 10, t. iv (1809). *Satureja virginiana* L. Sp. Pl. ii. 567 (1753) in part only. *Thymus virginicus* L. Mant. ii. 409 (1771), in part only, renaming of the preceding. *Brachystemum virginicum* Michx. Fl. Bor. Am. ii. 6 (1803) as to plant only. *B. linifolium* Willd. Enum. 623 (1809) as to plant, name illegitimate. *P. linifolium* Pursh, Fl. Am. Sept. ii. 409 (1814). *P. flexuosum* sensu BSP. Prelim. Cat. N. Y. Pl. 42 (1888), as to plant, not as to basonym. *Koellia flexuosa* MacMillan, Metasp. Minn. Val. 452 (1892) in part only, not as to basonym; Britton in Mem. Torr. Bot. Cl. v. 279 (1894) as to plant, not as to basonym.¹

COLLINSONIA SEROTINA Walt., Fl. Carol. 65 (1788), was well described "fol. magnis oppositis ovatis, petiolis longis, *supremo pari unice sessili, cordato*; panicula terminali ramosissima". Asa Gray, in the Synoptical Flora, ii¹. 351 (1878), cited it without question as identical with *C. punctata* Ell., Sk. i.36 (1816), which he treated as *C. canadensis*, var. *punctata* (Ell.) Gray. The species is now often treated as distinct and in such cases Walter's name should have precedence over Elliott's. In the varietal category Elliott's epithet is applicable.

PINGUICULA CAERULEA Walt. Fl. Carol. 63 (1788), as represented in the Fraser series of Walter's plants, our PLATE 1113, FIG. 3, \times ca. $\frac{1}{3}$, well illustrates the almost absurd confusion made

¹ On sheets in the Gray Herbarium we find the following combination which should be published, as it indicates the correct status of the plant:

PYCNANTHEMUM TORREI Benth., var. *leptodon* (Gray) Boomhour, comb. nov. in Herb. Gray. *P. pilosum* Nutt., β . *leptodon* Gray in Am. Journ. Sci. xlii. 46 (1842). *P. leptodon* Gray, Syn. Fl. N. Am. ii¹. 355 (1878).

by Fraser or the Frasers in attempting to identify the specimens or fragments. On page 83 of the series a small umbel, FIG. 1, mounted just above the properly identified *Pinguicula lutea* Walt. (FIG. 2), bears Fraser's label "*Pinguicula caerulea*". Asa Gray, as shown in his manuscript notes, recognized that this fragment is an inflorescence of *Oxalis violacea*. However, on another page (no. 526 on p. 80), there is a different specimen, correctly called *O. violacea*, this one with bulb and leaves, as well as umbel. Finally, specimen no. 487 on p. 104, bearing the appended name "*Utricularia gibba*", solves the mystery, for this is a plant of *Pinguicula* (our FIG. 3, \times ca. $\frac{1}{3}$) with dark and opaque rosette-leaves and a characteristic flower, which is readily matched (as to profile) by such a representative sheet of *P. elatior* Michx. (1803) as that of F. W. Hunnewell, no. 8115 (FIG. 4), from Summerville, South Carolina. The decision by Barnhart in *Addisonia*, xviii. 21, t. 587 (1933), to take up *P. CAERULEA* Walt. (1788) instead of *P. elatior* Michx. (1803) seems quite justified. In fact, when he published *P. elatior* Michaux himself suggested that it might be Walter's *P. caerulea*.

DIANTHERA OVATA Walt. Fl. Carol. 63 (1788) was well described but there seems to be no specimen preserved. It was transferred in 1900 to *Justicia* as *J. ovata* (Walt.) Lindau in Urban, Symb. Antill. ii. 237 (1900). In *RHODORA*, xliii. 641 (1941) the senior author took up for it the later *J. humilis* Michx. (1803) because *J. ovata* Dietrich in Steudel, Nom. ed. 2, i. 838 (1840) seemed to invalidate Lindau's combination. Unfortunately, however, as we are now beginning to understand, many names newly published by Steudel are illegitimate and have no nomenclatural force because they were published as synonyms only. Examination of the name *J. ovata* Dietr. clearly shows that it was a mere synonym. On p. 838 of Steudel it appeared in italics (as a synonym) under *Justicia* as "*ovata. Dietr. Dicliptera peruviana*" and on p. 504, under the maintained *Dicliptera* (with *Justicia* as a generic synonym) D. "*peruviana. Juss.*" had the synonym *Justicia ovata* Dietr. Index Kewensis also lists *J. ovata* E. Meyer in Drège, Zwei Pfl. Docum. (Flora, xxvi². Beig.) 196 (1843), from South Africa. There again the name had no nomenclatural force for it was a *nomen nudum*. In enumerating the plants of different localities Drège listed on p. 149, his no.



EUPATORIUM PILOSUM Walt. = *E. verbenaefolium* Michx. and *E. teucrifolium* Willd., all figs. from Walter's TYPE: FIG. 1, TYPE, $\times \frac{2}{5}$; FIG. 2, upper leaf, $\times 2$; FIG. 3, portion of inflorescence, $\times 2$.

4818 as "*Justicia ovata*, 4818". Then on p. 196, in an alphabetical list of his South African plants, he gave *Justicia* "ovata E.M.)". That seems to be the full publication of *J. ovata* E. Meyer. Later authors have regularly cited it in the synonymy of the species with which the Drège material has been identified but they do not seem to have defined it as *J. ovata*. Thus, Presl, Bot. Bemerk. 95 (1844), without a word of definition, said "*Justicia ovata* E. Meyer in Drege—est *Dicliptera ovata* Presl". In his treatment of the *Acanthaceae* in DC. Prodr. xi. 336 (1847) Nees ab Esenbeck described in detail the Drège material as *Rhytiglossa ovata*, with the synonym "*Justicia ovata* E. Meyer! cat. pl. Drèg." but the latter name can hardly be said to have been defined, except as a synonym. Similarly, C. B. Clarke in Thiselton-Dyer, Fl. Capensis, v¹. 80, 81 (1901) takes up *Isoglossa* "**ovata** (Lindau in Engl. & Prantl, Pflanzenfam. iv. 3B, 344)", giving a full description of the South African plant with the synonym "*Justicia ovata*, E. Meyer in Drège" etc. cited, as if that name had been defined. Just to show how hit-or-miss is the bibliographic work of too many of us (and we all get caught unless we scrupulously verify citations) we may turn to Clarke's reference (correct it would seem) to *Isoglossa ovata* Lindau in Engler & Prantl. Turning to the reference we find under *Isoglossa* "*I. ovata* (Nees) Örsted." along with many other binomials referred to Örsted; but, unhappily, Örsted in publishing the genus *Isoglossa* in Kjoeb. Vidensk. Meddel. for 1854: 155 (1855) made no combinations, merely saying, after his definition of the genus "*Rhytiglossa ciliata* et ceterae species capenses huc pertinent". According to *Index Kewensis* this constituted the publication of *I. ciliata*, but, even admitting that it does do so (by the International Rules), Örsted certainly did not there publish *I. ovata*. The primary author of the trivial name *ovata* for the South African plant seems to be Nees. It surely can not be taken up as based on the undescribed *Justicia ovata* Dietr. with which this complicated digression began. But the combination **JUSTICIA OVATA** (Walt.) Lindau should stand for the North American plant which was later defined as *J. humilis* Michx.

EUPATORIUM PILOSUM Walt. Fl. Carol. 199 (1788) (our **PLATE 1114, FIG. 1, $\times \frac{2}{5}$; FIGS. 2 and 3, $\times 2$**), described: "foliis lanceolato-ovatis, basi obtusis, serratis sessilibus, calycibus pilosis",

has very generally been thought possibly to be the same as *E. verbenae-folium* Michx. (1803), which antedates the identical *E. teucrifolium* Willd. (1804). Thus Gray, Syn. Fl. N. A. i². 99 (1884), taking up *E. teucrifolium*, gave as its first synonym "*E. pilosum*, Walt. Car. 199?". This interrogated identity is given in Index Kewensis, doubtless following Gray, and Britton & Brown give it (also with the interrogation) under *E. verbenae-folium*. Walter's description obviously applies to this common species of his region, in which the leaves of the primary axis are rounded to sessile bases, the reduced upper ones either sessile or with very short petioles. On the three pages of Fraser's series of Walter plants only one individual agrees with Walter's diagnosis. That, no. 755 (on p. 45), is a very characteristic inflorescence, with the lance-ovate, serrate and roundish-based leaves (although very short-petioled) of thoroughly typical *E. verbenae-folium*, the type of the latter and a pilose involucre ("calycibus pilosis") shown in RHODORA xlvii. t. 910 (1945). The Walter specimen could well have been the pattern for the inflorescence of *E. verbenae-folium* shown in Britton & Brown, Ill. Fl. iii. fig. 3624, p. 310 (1898). There seems no valid reason further to doubt that EUPATORIUM PILOSUM Walt. (1788) is the earliest and correct name for *E. verbenae-folium* Michx. (1803) or *E. teucrifolium* Willd. (1804).

EUPATORIUM LINEARIFOLIUM Walt. Fl. Carol. 199 (1788). It has generally been inferred, without examination of Walter's material, that *E. linearifolium* is the extreme and wide-ranging variety of *E. hyssopifolium* L. with very narrowly linear or linear-oblong leaves only 0.5–5 mm. broad, these opposite or most often in whorls of 4 or 6 and subtending very dense suppressed axillary branchlets of fascicled shorter leaves. Following this common interpretation the senior author named and illustrated this commonest variety of *E. hyssopifolium* as var. *linearifolium* (Walt.) Fernald in RHODORA, xlv. 460, pl. 737, fig. 3 (1942). Most surprisingly, however, there is nothing of this sort in the Fraser series of Walter's plants. The only one of Walter's preserved specimens which matches his description of *E. linearifolium*, "foliis linearibus integris subverticillatis, calycibus 3 ad 5-floris", is no. 671 on page 44. This specimen, with few-leaved axillary fascicles, is a good match for *E. tortifolium* Chapm. in

Bot. Gaz. iii. 5 (1878), with "leaves vertical, lanceolate, entire, . . . , the upper ones linear, alternate; . . . heads . . . 5-flowered; . . . Leaves 1-1½ in. long", Walter's "foliis linearibus . . . subverticillatis" evidently referring to the false whorls produced by the suppressed axillary branches of few leaves which regularly occur in *E. tortifolium*, as shown by isotypic material from Chapman and Ravenel's material from Santee Canal, the home of Thomas Walter. It is evident that the name *E. tortifolium* Chapm. (1878) must give way to *E. LINEARIFOLIUM* Walt. (1788).

The plant which has erroneously passed as *Eupatorium linearifolium* is

E. HYSSOPIFOLIUM L., var. **calcaratum**, nom. nov., foliis anguste linearibus vel lineari-oblongatis integris 0.5-5 mm. latis, laminis primariis 3-6 cm. longis oppositis vel verticillatis verticillis 4-6 foliis, fasciculo axillari densissime breviori.—Var. *linearifolium* sensu Fernald in RHODORA, xliv. 459, 460, pl. 737, fig. 3 (1942), not *E. linearifolium* Walt., basonym. TYPE from dry sands back of beach near Bass River Light, Dennis, Massachusetts, September 2, 1918, Fernald & Long, no. 17,448 in Herb. Gray.; isotype in Herb. Phil. Acad.

All others of Walter's new species of *Eupatorium*, in so far as specimens are preserved, seem to have been correctly interpreted. His *E. fusco-rubrum*, no. 733 on p. 46 of the collection, is small *E. purpureum* L. His *E. Marrubium* seems to be missing. *E. foeniculoides* (on p. 45) is represented by a large panicle of *E. capillifolium* (Lam.) Small, based on *Artemisia capillifolia* Lam. (1783); while *E. compositum* (on p. 46) is represented by a characteristic inflorescence. *E. cordatum* seems to be missing but a specimen of *E. incarnatum* is at the lower right hand corner of p. 46. No. 24 on page 44, marked simply "Eupatorium" is *Kuhnia eupatorioides* L. (1762). Another specimen, marked simply *Eupatorium* (at the right on p. 45), is a characteristic summit of *E. serotinum* Michx. (1803); this can not be reconciled with any species defined by Walter.

CHRYSANTHEMUM CAROLINIANUM Walt. Fl. Carol. 204 (1788). The specimen (684) in the Walter Herbarium is an exceptionally good one, the summit of a large flowering plant. It is, happily, what it was supposed to be when it was transferred to *Boltonia* as *B. caroliniana* (Walt.) Fern. in RHODORA, xlii. 487, pl. 642 (1940).

The plant from which the latter plate was made very closely matches Walter's specimen.

CARDUUS SPINOSISSIMUS Walt. Fl. Carol. 194 (1788), our PLATE 1115, FIG. 1, $\times \frac{2}{5}$, has generally been interpreted as identical with *Cirsium horridulum* Michx. Fl. Bor.-Am. ii. 90 (1803). This identification of the two may have started with Darlington, Fl. Cestr. ed. 2: 438 (1837), Darlington reducing *Cirsium horridulum* to *Carduus* "SPINOSISSIMUS, Walt.?" but giving a detailed description of the former. Even when, in RHODORA, xiii. 239, 240 (1911), Robinson pointed out that the combination *Cirsium spinosissimum* "(Walt.) Scop." was a sad confusion, since Scopoli's combination was really based on the European *Cnicus spinosissimus* L., he made no suggestion that Walter's plant is not *Cirsium horridulum*. The TYPE of Walter's *Carduus spinosissimus* is a whole plant, even including the base, but it is not *Cirsium horridulum*. Instead, it is a very characteristic, small specimen of *Cirsium Smallii* Britton in Britt. & Millsp. Baham. Fl. 458 (1920), a renaming of *Cirsium pinetorum* Small, Fl. Miami, 199, 200 (1913), not Greenm. (1905), Small having originally called it *Carduus pinetorum* Small, Fl. Se. U. S. 1308, 1341 (1903). Walter's plant is not only a good match for Florida material sent out by Small; it is almost identical with material collected from "flat pineland" by Ravenel close to Walter's home, in Santee Canal, South Carolina. Owing to the European *Cirsium spinosissimum* (L.) Scop. the name C. SMALLII has right-of-way.

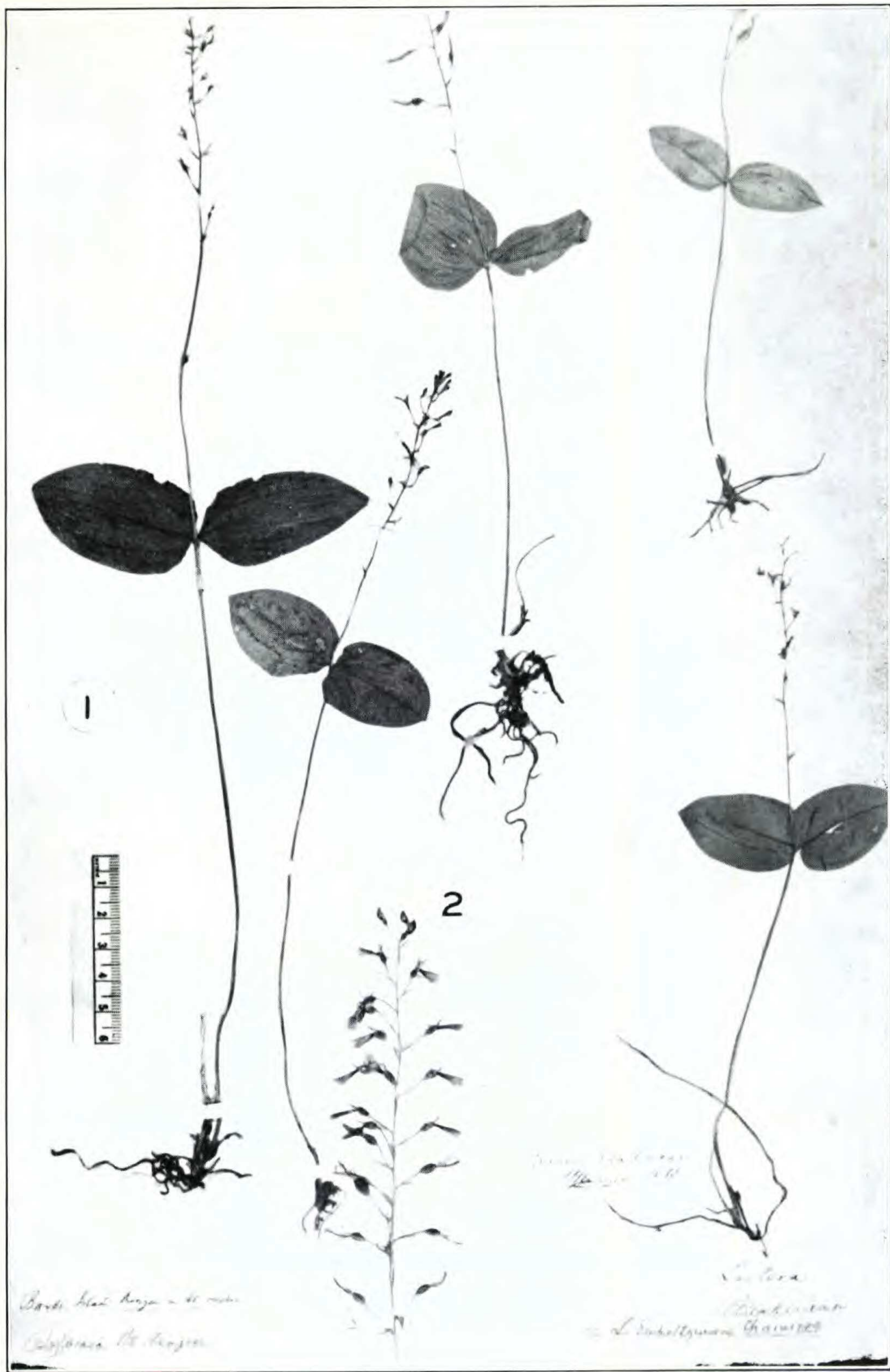
Walter had two other species of *Carduus* and, from the character of the tiny snips which he gave to Fraser, Asa Gray was justified in his manuscript note of February 9, 1839, in writing merely "Carduus = 3 thistles!". He was then unfamiliar, of course, with *Cirsium Smallii*, which was first recognized in 1903, and the two fragments mounted beside that superior specimen were of species then unfamiliar to him. *Carduus virginianus* L. was clearly described by Walter "foliis lanceolatis spinulosis" etc. and he obviously had that species. His third species was *Carduus*

- carolinianus* foliis amplexicaulibus, hastato-pinnatifidis,
 2. spinis inaequalibus ciliatis, subtus tomentosus,
 calycibus aphyllis, squamis spinulosis, floribus
 paucis rubris.



CARDUUS SPINOSISSIMUS Walt.: FIG. 1, TYPE, $\times \frac{2}{5}$ = CIRSIUM SMALLII Britton, not *Cirsium spinosissimum* (L.) Scop.

CARDUUS CAROLINIANUS Walt. = CIRSIUM CAROLINIANUM (Walt.) Fernald & Schubert = *Carduus flaccidus* Small and *Cirsium flaccidum* (Small) Petrak: FIG. 2, Walter's TYPE, $\times \frac{2}{5}$; FIGS. 3 and 4, portions of a recent specimen from Houston, Texas, *E. Hall*, no. 371, $\times 1$.



LISTERA BANKSIANA Lindl. = *L. caurina* Piper: FIG. 1, TYPE, $\times \frac{2}{5}$ of *L. banksiana* at right; specimens, $\times \frac{2}{5}$, from Banks Island, *Menzies*, at left.

L. CAURINA Piper: FIG. 2, inflorescence, $\times \frac{3}{5}$, from Wreck Bay, west coast of Vancouver Island, *W. R. Carter*, no. 843.

In RHODORA, xlv. 509, 510 (1943) the senior author, engaged at that time in a close study of eastern North American *Cirsium*, pointed out the many characters which distinguish *C. flaccidum* (Small) Petrak in Beiheft. Bot. Centralbl. xxxv. Ab. 2: 543 (1917), based on *Carduus flaccidus* Small, Fl. Se. U. S. 1307, 1341 (1903), and *Cirsium virginianum* (L.) Michx. Among the many characters then noted were the following: "In *C. virginianum* the peduncle-like flowering branches have several bracteiform leaves, in *C. flaccidum* the peduncles are naked or with only 1 or 2 bracts; in *C. virginianum* the involucre is 1.5–3 cm. high, in *C. flaccidum* only up to 2 cm. high". The small bit preserved by Fraser (no. 376 on p. 25) is merely a portion of an inflorescence (our PLATE 1115, FIG. 2, $\times \frac{2}{5}$) but it shows the naked leading peduncle of *C. flaccidum* and the involucre about 1.4 cm. high, a measurement below that shown in *C. virginianum* but duplicated or approximated by heads of many specimens of *C. flaccidum*. Fraser's fragment shows no well developed cauline leaves but numerous well collected specimens of *C. flaccidum*, such as Hall's material (our PLATE 1115, FIGS. 3 and 4) from slightly west of Small's type-region, in eastern Texas, well display the "foliis amplexicaulibus hastato-pinnatifidis spinis inaequalibus ciliatis" of *Carduus carolinianus*. They also show the naked leading peduncle as in the fragment preserved in the Fraser volume. It, therefore, seems that we should call the characteristic southern and inland species

CIRSIUM carolinianum (Walt.), comb. nov. *Carduus carolinianus* Walt. Fl. Carol. 195 (1788). *C. flaccidus* Small, Fl. Se. U. S. 1307, 1341 (1903). *Cirsium flaccidum* (Small) Petrak in Beiheft. Bot. Centralbl. xxxv. Ab. 2: 543 (1917); Fernald in RHODORA, xlv. 509 (1943). Our PLATE 1115, FIGS. 2 and 3.

PART V. A FEW SPECIES OF LATER AUTHORS

BETULA EXCELSA Ait. Hort. Kew. iii. 337 (1789) is, as shown by the very complete TYPE preserved, not an American, although thought by Aiton to be "Nat. of North America", and by various American and European students guessed to be *B. papyrifera* Marsh. There must have been other misconceptions regarding it, these reflected in the specific name and the English "Tall Birch Tree", for the fruiting type shows round-ovate leaves